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CLAIM SET AS AMENDED

1-17 (Canceled)

18. (Previously Presented) An open cable set-top box comprising:

a main circuit unit receiving a broadcast signal transmitted from a head end or a broadcasting station, decoding the broadcast signal and outputting the decoded broadcast signal;

a CPU controlling the main circuit unit, performing a point of deployment (POD) interfacing with the head end or the broadcasting station through a POD interface protocol, and diagnosing specific information or an operation state of the main circuit unit by having a diagnostic resource on a resource layer of the POD interface protocol; and

a POD interface port exchanging a data with the head end or the broadcasting station according to the POD interface protocol of the CPU,

wherein the diagnostic resource includes at least one diagnostic request object and a diagnostic confirmation object.

19. (Previously Presented) The open cable set-top box of claim 18, wherein a communication module of a PCMCIA card type is connected to the POD interface port.

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20. (Previously Presented) The open cable set-top box of claim 18, wherein the diagnosing is performed by the head end or the broadcasting station to check a state or an operation state of the main circuit unit.

21. (Canceled)

22. (Canceled)

23. (Currently Amended) The open cable set-top box of claim 18, wherein ~~the~~ a diagnostic <u>state</u> confirmation object transfers the diagnosis result performed by a processor to the head end or the broadcasting station.

24. (Previously Presented) The open cable set-top box of claim 18, wherein the resource layer contains a resource manager resource, an MMI resource, an application information resource, a low speed communication resource, a conditional access support resource, a copy protection resource, a host control information resource, an extended channel support resource, a generic IPPV support resource, a specific application support resource and a diagnostic resource.

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25. (Previously Presented) The open cable set-top box of claim 18, wherein the diagnostic resource contains a diagnostic open request object, a diagnostic confirmation request object, a diagnostic state request object, a diagnostic state confirmation object, a diagnostic data request object, and a diagnostic data confirmation request.

26. (Previously Presented) The open cable set-top box of claim 18, wherein the main circuit unit comprises:

a tuner tuning the received broadcast signal;

a demodulator demodulating the broadcast signal tuned by the tuner;

a demultiplexer selecting either the signal demodulated by the demodulator or a signal inputted from an interface, and outputting the selected signal;

a decoder decoding a data stream outputted from the demultiplexer;

an OOB receiver receiving broadcast information from the tuner; and

an OOB transmitter transmitting a data inputted from the interface to the tuner.

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27. (Previously Presented) An open cable set-top box comprising:

a main circuit unit receiving a broadcast signal transmitted from a head end or a broadcasting station, decoding the broadcast signal and outputting the decoded broadcast signal;

a CPU controlling the main circuit unit, performing a point of deployment (POD) interfacing with the head end or the broadcasting station through a POD interface protocol, and diagnosing specific information or an operation state of the main circuit unit by having a diagnostic resource on a resource layer of the POD interface protocol; and

a POD interface port exchanging a data with the head end or the broadcasting station according to the POD interface protocol of the CPU,

wherein the head end periodically checks an operation state of the set-top box and informs a pertinent set-top box manufacturer of diagnosed information on a set-top box with a problem through a network on a real time basis.

28. (Previously Presented) An open cable set-top box comprising:

a main circuit unit receiving a broadcast signal transmitted from a head end or a broadcasting station, decoding the broadcast signal and outputting the decoded broadcast signal;

a CPU controlling the main circuit unit, performing a point of deployment (POD) interfacing with the head end or the broadcasting station through a POD

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interface protocol, and diagnosing specific information or an operation state of

the main circuit unit by having a diagnostic resource on a resource layer of the

POD interface protocol; and

a POD interface port exchanging a data with the head end or the

broadcasting station according to the POD interface protocol of the CPU,

wherein the diagnostic resource previously defines an object that a POD

interface module and the set-top box are to use for exchanging a diagnosis

data, determines a specific ID information data format for identifying a

subscriber set-top box, divides the whole system into sub-systems, a functional

unit for checking, assigns an ID to each sub-system, defines each state of the

sub-systems and exchanges status information of each sub system as a data of

the object.

29. (Canceled)

30. (Canceled)

31. (Previously Presented) An open cable system comprising:

a set-top box decoding a broadcast signal receiving from a head end or a

broadcasting station and outputting a decoded broadcast signal;

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a point of deployment (POD) module having a conditional access unit, descrambling the broadcast signal received from the head end or the broadcasting station and performing a bi-directional communication with the set-top box and the head end; and

a POD interface having a POD interface protocol so as to perform an interfacing between the set-top box and the POD module, the POD interface protocol having a diagnostic resource at a resource layer so that the head end or the broadcasting station can diagnose specific information or an operation state of the set-top box,

wherein the diagnostic resource includes at least one diagnostic request object and a diagnostic confirmation object.

32. (Previously Presented) The open cable system of claim 31, wherein the set-top box and the POD module are separable.

33. (Previously Presented) An open cable system comprising:

a set-top box decoding a broadcast signal receiving from a head end or a broadcasting station and outputting a decoded broadcast signal;

a point of deployment (POD) module having a conditional access unit, descrambling the broadcast signal received from the head end or the

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broadcasting station and performing a bi-directional communication with the set-top box and the head end; and

a POD interface having a POD interface protocol so as to perform an interfacing between the set-top box and the POD module, the POD interface protocol having a diagnostic resource at a resource layer so that the head end or the broadcasting station can diagnose specific information or an operation state of the set-top box,

wherein the diagnostic resource previously defines an object that the POD interface module and the set-top box are to use for exchanging a diagnosis data, determines a specific ID information data format for identifying a subscriber set-top box, divides the whole system into sub-systems, a functional unit for checking, assigns an ID to each sub-system, defines each state of the sub-systems and exchanges status information of each sub system as a data of the object.

34. (Previously Presented) A method of performing diagnostic function in an open set-top box that receives information from a head end, wherein the set-top box comprises a main circuit unit receiving a broadcast signal transmitted from a head end or a broadcasting station, decoding the broadcast signal and outputting the decoded broadcast signal; a CPU controlling the main circuit unit, performing a point of deployment (POD) interfacing with the

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head end or the broadcasting station through a POD interface protocol, and diagnosing specific information or an operation state of the main circuit unit by having a diagnostic resource on a resource layer of the POD interface protocol; and a POD interface port exchanging a data with the head end or the broadcasting station according to the POD interface protocol of the CPU, the method comprising the steps of:

receiving from the head end a set-top box status request;

communicating with the main circuit module using the diagnostic resource that includes diagnostic support objects, wherein the POD module transmits a diagnostic request object;

upon receiving the diagnostic request object, performing by the main circuit unit a requested function dictated by the diagnostic request object and providing information to the POD module through a diagnostic confirmation object; and

communicating with the head end to provide information contained in the diagnostic confirmation object.

35. (Previously Presented) The method of claim 34, wherein the set-top box status request includes ID information related to the set-top box and a sub-system construction.

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36. (Previously Presented) The method of claim 34, wherein the diagnostic resource includes diagnostic support objects comprising at least one of the following:

a diagnostic open request object, a diagnostic open confirmation object, a diagnostic state request object, a diagnostic state confirmation object, a diagnostic data request object and a diagnostic data confirmation object.

37. (Previously Presented) The method of claim 36, wherein the POD module communicates with the main circuit unit using the diagnostic open request object to request the main circuit unit to open diagnostic source, using the diagnostic state request object to request a system status, and using the diagnostic data request object to request detailed information.

38. (Previously Presented) The method of claim 36, wherein the main circuit unit communicates to the POD module using the diagnostic open confirmation object to provide sub-system construction information, using the diagnostic state confirmation object to provide an error status of the main circuit unit, and using the diagnostic data confirmation object to provide at least error status information of the sub-system of the main circuit unit.

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39. (Previously Presented) The method of claim 34, wherein the set-top box status request is periodically received from the head end.

40. (Previously Presented) The method of claim 37, wherein the POD module requests the diagnostic data request object to the main circuit unit to request the detailed information when there exists an abnormality in the main circuit unit.

41. (Previously Presented) A method of performing diagnostic function in an open set-top box that receives information from a head end, wherein the set-top box comprises a main circuit unit receiving a broadcast signal transmitted from a head end or a broadcasting station, decoding the broadcast signal and outputting the decoded broadcast signal; a CPU controlling the main circuit unit, performing a point of deployment (POD) interfacing with the head end or the broadcasting station through a POD interface protocol, and diagnosing specific information or an operation state of the main circuit unit by having a diagnostic resource on a resource layer of the POD interface protocol; and a POD interface port exchanging a data with the head end or the broadcasting station according to the POD interface protocol of the CPU, the method comprising:

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a step in which when a command for checking the operation state of the set-top box is inputted from the head end, the POD module requests system state information from the set-top box, and when the system state information is received from the set-top box, the POD module transmits the system state information to the head end;

a step in which the head end checks whether there is an error in the set-top box on the basis of the received system state information and requests detailed information on a defective sub-system from the POD module in case that there is an error in the set-top box; and

a step in which the POD module requests detailed information of the defective sub-system from the set-top box, and when detailed information on the defective sub-system is received from the set-top box, the POD module transmits the detailed information to the head end.

42. (Previously Presented) The method of claim 41, further comprising a step in which when information indicating that there is an error in the set-top box is received, the head end registers the received error information with a subscriber managing server and informs a manufacturer of the corresponding set-top box and a set-top box ID.